

WHAT IS CLAIMED IS:

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1. A QoS controller, in an IP network having one or more routers, comprising:

10 a storing unit configured to assign a first bit area and a second bit area within a field in an IP header of an IP packet, and store first bits for controlling said routers into said first bit area and second bits for routing at said routers into said second bit area; and

15 a reporting unit configured to report to said routers said first bits and said second bits stored by said storing unit.

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2. The QoS controller as claimed in claim 1, wherein said storing unit further comprises a storing-control unit configured to change a ratio of said first bit area to said second bit area so as to  
25 store said first bits into said first bit area and said second bits into said second bit area.

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3. The QoS controller as claimed in claim 1, further comprising a database unit,  
wherein said database unit represents a first

bit sequence as a router-control class for controlling said routers, and a second bit sequence as a routing class for routing at said routers; and

5 stores, in accordance with a type of the IP packet, a relationship between said router-control class and said routing class,

and wherein said reporting unit reports to said routers the relationship, stored at said database unit, between said router-control class and said  
10 routing class.

15 4. The QoS controller as claimed in claim 3, further comprising:

a traffic-monitoring unit configured to monitor traffic conditions at said routers; and

a corresponding-relationship updating unit  
20 configured to change the relationship, stored at said database unit, between said router-control class and said routing class, based on said monitored traffic condition,

wherein said reporting unit reports to said  
25 routers the relationship changed by said corresponding-relationship updating unit.

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5. A method of controlling QoS in an IP network having one or more routers, comprising the steps of:

assigning within a field in an IP header of an IP packet a first bit area and a second bit area;

storing first bits for controlling said routers into said first bit area, and storing second  
5 bits for routing at said routers into said second bit area;

reporting to said routers said first bits and said second bits stored; and

causing, according to said reporting, said  
10 routers to start controlling and routing at said routers based on said reported first bits and said reported second bits stored.

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6. A router in an IP network,  
comprising a control and relay unit  
configured to control and route at said router in  
20 accordance with first bits for controlling said router stored in a first area assigned within an IP-header field of an IP packet, and second bits for routing at said router stored in a second area also assigned within said IP-header field of the IP packet.

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7. The router as claimed in claim 6,  
30 which is arranged at a boundary of said IP network,  
further comprising a setting unit configured to set, based on a type of said IP packet, a router-control class to said first bits and a routing class

to said second bits.

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8. The router as claimed in claim 6,  
further comprising:

a traffic-measuring unit configured to measure  
volume of traffic flowing into said router; and

10 a traffic-condition reporting unit configured  
to report said measured volume as a traffic report to  
a QoS controller connected to said IP network.

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